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ABSTRACT

Since the 1950's psychological research has attempted to define adaptive behavior, i.e., competence. To develop a system for explaining effective behavior, an international team of researchers developed a conceptualization of competent behavior which included three components: coping behaviors, motivation, and attitudes. A set of internationally usable, reliable measures was developed and compared to objective criteria of school achievement for 14-year old children (N=5400) from 8 countries. The coping/motivation measures showed substantial power to predict and explain achievement, both alone and in conjunction with aptitude, e.g., as high as 56% of the variance in one country. Results indicated that national samples and cohorts differed on the kinds of coping skills affected by achievement. Defensive behavior proved adverse to good achievement in all countries except Japan. In addition, strength of motivation, estimated by aspiration scores, was a powerful predictor of achievement. The findings suggest that more research is needed in the construction of a general theory of effective behavior. (Author/KMF)

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Coping Behavior and Achievement:
Validating a Conceptual System

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An international team of researchers developed a conceptualization of competent behavior which includes three components: coping behaviors, motivation, and attitudes. A set of internationally usable, reliable measures was developed and compared to objective criteria of school achievement. Fifty-four hundred 14-year old children from eight countries were the sample. The coping/motivation measures showed substantial power to predict and explain achievement, both alone and in conjunction with aptitude (as high as 56% of the variance, in one country). National samples and cohorts (1965 and 1968) differed on which kinds of coping skills affected achievement. Implications are discussed for education, the study of social competence, and vocational psychology.

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Prior to the 1950's, psychological theory dealt almost exclusively with maladaptive behavior. Since then, considerable effort has gone into defining what constitutes adaptive behavior, or competence. This study undertook to develop an improved conceptual system for explaining effective behavior; to build reliable measures of the components of that behavior; to develop and apply the measures internationally; and to validate the measures and concepts against objective criteria of achievement.

Such a conceptual system was built by an eight-nation team. It defined three sets of components of effective behavior: a sequence of coping actions or skills; feelings and attitudes assumed to facilitate effectiveness; and the intensity of motivation and the particular kinds of motives for performing effectively in the realm of school achievement (Tables 1 and 2). A set of measures was developed, embodying these presumed elements of effective behavior. These instruments included a Sentence Completion test (SC), a projective measure designed to describe coping behavior; an Occupational Values Inventory (OVAL), to measure preferred characteristics of future work, and its rewards; the Social Attitudes Inventory (SAI), a self-report measure of coping skill. Two versions of the SAI were developed; one was used in testing the first sample (SAI-I, 1965), and one was used in the second sample (SAI-III, 1968). This first one included both an active-passive dimension and coping-defensive dimension. The SAI-III only included a coping-defensive dimension. Also included were the Views of Life (VOL), a measure of numerous aspects of coping, such as locus of control, activity-passivity, independence of thought and action, etc; and the Behavior Rating Scale (BRS) a peer-rating measure of coping. The instruments were developed in international conference, translated, back-translated, pilot-tested and revised until item-comparability in six languages was attained. The measures were taken in a stratified sample of 800 in each site in 1965: boys and girls, ages 10 and 14, upper-middle and skilled working class, in equal numbers. The sites were Sao Paulo, Brazil; London, England; Milano, Italy; Tokyo, Japan; Mexico City, Mexico; U.S.A.: Austin, Texas; U.S.A.: communities in the Chicago area; and Ljubljana, Yugoslavia. In 1968, the study was repeated on a new, similar sample of 400 in each site, now including Hannover, Heidelberg and Koblenz, West Germany.

Initially, correlational and variance analyses were performed on the individual variables. In 1977, advances in research technology and renewed funding made it possible to factor analyze each instrument in each national (and age) sample, then to perform multiple regression analyses to assess the power of the coping and motivation measures to

predict school achievement, beyond the effects of aptitude, as well as the effects shared with aptitude. The factors were also compared across cohorts within each country, and across countries, to identify universal and country-specific clusters of coping components, and to assess their stability over time.

An appropriate conceptual system was successfully developed, judging by two criteria. Multiple-judge teams in all countries reached a strong consensus (.84 reliability, overall), on what components constitute effective coping action (Table 2). Second, when some of these concepts were embodied in a Sentence Completion instrument, children in all countries, in both years, generated five common factors: effective coping with achievement, peer relations, authority, anxiety and aggression. In doing so, they demonstrated that coping effectiveness is specific to each behavior area and that effective coping includes the skills of confronting problems, actively engaging with them, and showing neutral or positive feelings in the process. In responding to a Social Attitudes Inventory and in keeping with the theory of the study, they generated a Coping-Defensive factor, rather than a less evaluative, stylistic Active-Passive dimension.

The test-retest reliability of the instruments ranged from satisfactory (Sentence Completion, .75 to .80 on the main five factors; Occupational Values, .63 to .83; Occupational Aspiration levels, .51 to .89; Social Attitudes Inventory III, .60 to .72; Behavior Rating Scale, .83 to .97) to inadequate (Views of Life, below .60). The reliability of the SAI-I was not tested, unfortunately, although it proved quite valid. The stability of the instrument factor scores across cohorts similarly ranged from extremely high (Sentence Completion) to low (Occupational Values).

The comparison of factors across countries showed ten "universal" dimensions of coping: the Sentence Completion coping skill and attitude factors for the five behavior areas; the SAI-I coping score and defensive score; the SAI-III good-coping score; and, of course, the educational and occupational aspiration scores, used as measures of the intensity of motivation to achieve. In the realm of valued career-rewards, considered as motives, each nation had its own distinctive profile, and there were no universal factors.

The regression findings yielded several kinds of verification for the theory and the instruments. Overall, the coping/motivation measures showed more prediction of achievement, both alone and in conjunction with aptitude, than almost any previous non-cognitive measures have shown. This ranged from a low in Brazil in 1965 (7% total math achievement explained; 14%, reading) to highs in 1968 in England (56% of math explained) and West Germany (52% of reading) (Table 3).

As for validation of the elements of the concept system, the results showed that coping skills in the five behavior areas significantly affect achievement; demonstrating that skills in nonacademic areas do affect achievement. Defensive behavior proved adverse to good achievement everywhere but in Japan.

Strength of motivation, as estimated by the aspiration scores, proved a powerful predictor. Indeed, the quickest, cheapest way to predict, quite accurately, how well children will perform in school is to ask them how far they want to go in school. Clearly, most children, in every country studied, are quite realistic in matching their educational aspirations to their actual academic skills; by implication, they must be quite realistic in appraising their own skills, too.

The kinds of motives for working also significantly predict achievement, but in nationally idiosyncratic ways to a considerable degree. The kinds of motives that make for successful achievement, and especially for good grades, seem to depend on what the particular society values and encourages.

Indeed, even where the universally esteemed coping skills were at issue, the national samples and even the cohorts differed on which kinds of coping skills affected achievement (skill with peer relations, or aggression, or authority, etc.).

The many patterns in the present data illustrate the importance of adopting Kurt Lewin's view of human life as a multivariate, interactive process whose lawful regularities cannot be explained by oversimplified general "laws" of behavior (Cronbach, 1975), but only by a Person-Environment Interaction model (Hunt, 1975). While the present evidence almost all supports the general idea that independent coping skills and the motivation to use them are important for effective achievement, it equally illustrates that there may be crucially important differences in the particular skills and the particular motivations that work best in different societies. What is more, changes in these particulars can occur over a relatively short time within any one modern society.

This is not at all to say that explanations of human behavior are undiscoverable, or a matter of chaotic, lawless unpredictability. It is merely to reiterate the logic of the emerging science of ecology: circumstances do alter cases. In order to understand any one case, a great many relevant circumstances must be taken into account. When an explanation of effective behavior is concerned, this requires specifying the particular domain of behavior and measuring at least a fair sample of the many things that can influence that behavior. This is difficult, to be sure, and it keeps things always at least somewhat uncertain when it comes to predicting what will work next year, in the next country.

The concept system developed here, while not perfectly tested by this kind of design, did show promising validity. In its coping-skill component, it may fill a gap in existing theory by specifying a logical sequence of observable actions that make up the coping process. It applies, as White (1974) prefers, to challenges of everyday living, not just to critical, stressful emergencies. This international research team's definition of the affective parts of coping, as well as its

rational properties, resembles Heath's concept of "maturity" (Heath, 1977). He makes a useful distinction between general maturity and competence in one specific behavior area. Similarly, children in this study could be effective in one area without equivalent competence in other areas. Heath's concept of "maturity" might be equated to a high level of effectiveness in most or all of the five areas of behavior. Murphy (1976) and Haan (1977) also see coping as a process of integrating one's resources.

One relationship looks fascinating, worth much further research: the possibility of causal linkages between national styles of coping and motivation, and national patterns of economic growth. It is certainly plausible to argue that the vigorous Japanese economy might be rooted in the kind of achievement-oriented, independence-seeking, power-seeking drives displayed by the ablest Japanese youth in this study. The Japanese youth as a whole though displayed a value profile quite at odds with this, which may create stress in the future, if not a reversal of the national economic pattern. The explosive economic vigor of Sao Paulo and Mexico City, too, are matched by the optimistic ambition of their youth. The case in West Germany is less clear. These German youth showed more concern for mastering anxiety and aggression, than skill in coping with achievement tasks. The best achievers among them did not value success, prestige or high income but independence and interesting work. Does this pattern foreshadow a slowing down of the fast pace of German economic growth in the next twenty years? Certainly, the youth of England and the U.S., in their values, skills, and primary concerns, look very likely to keep economic growth at its recent low levels, if they become the pacesetters of the next generation. A longitudinal follow-up of these subjects would also be valuable, to determine the continuity of coping skills and motives into adult life, and their affects on career choice and career effectiveness.

There are several educational implications of prime importance. If children are to cope well with life, the evidence says, they must be encouraged and taught to be increasingly self-starting, self-sustaining, independent problem solvers. Moreover, they need to learn to cope well with anxiety, aggression and interpersonal relations. Apart from this intrinsic value, these skills strongly affect academic learning. This is not what typical urban schools foster, in any society. In some countries in this study, teachers seemed out of touch with what students actually knew, or did. Mass education, in a conforming style, is almost forced upon schools by limitations of teacher time, resources, or even moral support for encouraging student independence of thought. More help is needed for parents, administrators, and teachers: help to learn to recognize deficiencies in student coping skills; help to learn how to value and enjoy children who exercise these active skills; and moral support for this educationally unconventional pursuit. It might help to couch all talk, not in terms of "coping skills" but "good work habits," for that is really what they are, in the realm of achievement. New teacher

training materials and well designed workshops are almost essential, if this new set of school objectives is ever to become standard and respectable: teaching the steps in the coping sequence. This would respond to Zigler's urging to assess "social competence," as the most important outcomes of education (Zigler and Trickett, 1978).

The present study has some clear limitations. Its samples were all urban, all from developed, modern communities, and they left out the poorest children. The psychometric strategy meant the use of indirect, relatively weak measures, instead of minute observation of actual behavior. Pencil-and-paper measures are indirect reflections of behavior, and they are subject to social desirability effects and other distortions. Further, this approach did not supply a full test of the reality of the coping skill sequence, as a total process. New research will be needed to do that. Despite these limitations, progress has been made toward the construction of a general theory of effective behavior that illustrates the value, indeed the necessity of considering a wide range of psychological, cultural, social and historical variables if a full, accurate understanding of human nature is to be achieved.

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Table 1

The Components of Effective Behavior and Their Measures in This Study

EFFECTIVE BEHAVIOR

COPING SKILLS

Confront (SC, VOL)
Engage (SC)
Initiate (VOL - Initiate, Independent)
Conceive of Solution (VOL)
Use Aid or Advice (SC)
Implement (VOL-Implement, Instrumentality, Active Under Stress)
Persist (St.C)
Achieve Solution (SC-Copes, SAI-Copes, not defensive)

MOTIVATION

Educational Aspiration	(D)
Occupational Aspiration	(OII)
Finds intrinsic value in work	(VOL
Wants earned vs. bestowed status	(VOL)
Puts achievement ahead of Interpersonal Relations	(VOL)
Preferred career rewards among 15 possible values	(OVAL)

(Intrinsic rewards likely to foster achievement; Super, 1957)

ATTITUDES AND FEELINGS

In Five Areas of Life

Positive Attitude	(SC)
Positive Affect expressed	(SC)
-Depressive Affect expressed	(SC)
-Hostile Affect expressed	(SC)

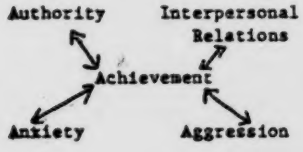
General

Views life as complex	(VOL)
Emotionally expressive	(VOL)
Prefers competition to cooperation	(VOL)

Self-Evaluation

Locus of Control	(VOL)
Self-Esteem	(VOL)

Effective Behavior in Five Areas of Life



Instruments

SC = Sentence Completion
VOL = Views of Life
OVAL = Occupational Values
OII = Occupational Interests Inventory
D = Demographic Questionnaire
St.C. = Story Completion

Table 2

SEQUENTIAL SKILLS IN THE COPING PROCESS

Non-Coping Behavior	COPING BEHAVIOR			
	Coping Acts	Additional Components of Coping Effectiveness	Quality of Coping	
			Moderate	High
1. No	CONFRONT	(Called Stance in the scoring manuals)		
2. AGGRESSIVELY		CONSTRUCTIVELY	Delayed	Immediate
3. No	ENGAGE		Procrasti-nate	Act; allow-ing for re-flection
4. Other		Who INITIATES?	Joint	Self
5. Yes, UNSOUGHT		AID or ADVICE used?	Self-sought	Not used
6. OTHER		Who conceives of SOLUTION?	Joint	Self
7. OTHER	IMPLEMENT		Joint	Self
8. GIVES UP, BLAMES OTHERS, OR REACTS AGGRESSIVELY		PERSISTENCE (Called Implementation in the scoring manuals)	Seeks help	Alters the situation, or recognizes it as genuinely unsolvable.
9. UNSUCCESSFUL	ACHIEVE SOLUTION		Delayed solution	Immediate solution
10. NEGATIVE		SELF-EVALUATION OF OUTCOME	Mixed; or no strong evaluative reaction	Positive

Table 3

The Strength of Predictions of Achievement by the Coping, Motivation and Aptitude Measures

14 Year Olds

Reading Achievement

	Brazil		Mexico		England		Germany		Italy		Yugoslavia		Chicago		Austin		Japan	
	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III	Stage I	Stage III
Aptitude (unique)	3.0	1.0	6.3	6.2	9.9	13.2	-	5.0	10.2	7.3	5.4	3.6	.7	-	19.0	6.8	12.0	12.0
Coping/Motivation (unique)	8.4	22.5	14.0	20.3	13.0	8.9	-	17.5	15.2	22.2	17.6	18.7	12.3	-	5.8	13.2	22.0	16.3
Total	14.0	24.8	28.4	37.9	36.6	40.3	-	52.0	32.6	38.2	32.2	29.0	17.9	-	36.2	31.7	43.0	36.0
Math Achievement																		
Aptitude (unique)	1.4	3.3	15.6	14.6	23.0	15.4	-	11.4	12.1	3.9	15.5	3.1	0	-	29.6	10.7	14.0	20.0
Coping/Motivation (unique)	5.1	18.8	9.8	13.0	6.8	8.5	-	5.4	5.9	8.7	7.4	14.6	11.7	-	5.4	13.0	11.0	14.6
Total	7.3	20.6	36.5	37.7	44.8	56.2	-	21.0	20.9	17.8	34.8	20.3	12.4	-	48.4	36.9	36.0	43.0
Grade Point Average																		
Aptitude (unique)	3.0	1.8	6.3	13.6	2.3	4.1	-	2.5	8.8	3.3	1.0	1.3	4.0	14.7	11.9	2.3	11.0	8.5
Coping/Motivation (unique)	1.7	8.4	4.6	4.6	15.3	12.5	-	1.1	5.3	7.0	36.3	38.2	22.3	7.9	9.5	24.3	7.5	21 6
Total	4.8	9.0	12.9	21.8	23.5	31.1	-	4.9	16.8	14.8	45.6	47.8	37.2	30.7	29.0	38.0	27.0	40.8

The figures shown are percentages of variance (R^2) on the criterion